

I. IDENTIFICATION

MSDS ID: MSDS208

DATE OF MSDS PREPARATION/REVISION: 08/15/02

MANUFACTURER: Prestone Products Corporation
39 Old Ridgebury Road
Danbury, CT 06810-5109

INFORMATION PHONE NUMBER: (203) 830-7800

EMERGENCY PHONE NUMBER: CHEMTREC 1-800-424-9300
483-7161 in the District of Columbia

PRODUCT NAME
PRESTONE(R) II Antifreeze

TYPE
Inhibited Ethylene Glycol

STOCK
AF552

FORMULA
YA856

II. PHYSICAL DATA

BOILING POINT, 760 mm Hg
334 F

FREEZING POINT
-8 F

DENSITY (at 68 F)
9.4 lbs/gal

VAPOR DENSITY (Air = 1)
2.1

VAPOR PRESSURE (at 68 F)
Less than 0.1 mm Hg

VOLATILES BY VOLUME
none

SOLUBILITY IN WATER, % by Wgt.
100

EVAPORATION RATE (Butyl Acetate = 1)
Less than 1

APPEARANCE AND ODOR
Yellow, mild odor.

III. HAZARDOUS INGREDIENTS

(includes IARC, NTP, OSHA and ACGIH listed carcinogens greater than 0.1%)

MATERIAL	%	CAS #	EXPOSURE LIMITS	SOURCE
Ethylene Glycol	80-95	107-21-1	50 ppm (Ceiling)	(3)
Diethylene Glycol	0-8	111-46-6	none established	(3)

NON-HAZARDOUS INGREDIENTS >]%

Water	1-5	7732-18-5
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The source for exposure limits listed above are:

- (1) OSHA Permissible Exposure Limit (effective 9/89)
- (2) ACGIH Threshold Limit Value (1988-89 Edition)
- (3) Both the OSHA PEL and ACGIH TLV
- (4) Recommended by the Manufacturer

None of the ingredients in this product are listed as a carcinogen (or suspected carcinogen) by IARC, NTP or OSHA.

IV. FIRE AND EXPLOSION HAZARD DATA

FLASH POINT

Tag Open Cup: 242 F(117 C)
Pensky-Martens Closed Cup: 220 F(104 C)

FLAMMABLE LIMITS IN AIR, % BY VOLUME

LOWER: 3.2 (calculated)
UPPER: 15.3 (estimated)

AUTOIGNITION TEMPERATURE

Not Determined

EXTINGUISHING MEDIA

Apply alcohol type or all-purpose type foams by manufacturers' recommended techniques for large fires. Use water spray, carbon dioxide or dry chemical media for small fires.

SPECIAL FIRE FIGHTING PROCEDURES

Do not spray pool fires directly. A solid stream of water or foam directed into hot, burning liquid can cause frothing. Use self-contained breathing apparatus and protective clothing.

UNUSUAL FIRE AND EXPLOSION HAZARDS

None

V. HEALTH HAZARD DATA

EFFECTS OF SINGLE OVEREXPOSURE

SWALLOWING

May cause abdominal discomfort or pain, nausea, vomiting, dizziness, drowsiness, malaise, blurring of vision, irritability, lumbar pain, oliguria, uremia, and central nervous system effects, including irregular eye movements, convulsions and coma. Cardiac failure and pulmonary edema may develop. Severe kidney damage follows the swallowing of large volumes of ethylene glycol. May be fatal. A few reports have been published describing the development of weakness of the facial muscles, diminished hearing, and difficulty with swallowing, during the late stages of severe poisoning.

SKIN ABSORPTION

No evidence of adverse effects from available information.

INHALATION

May cause irritation of the nose and throat with headache, particularly from mists. High vapor concentrations caused, for example, by heating the material in an enclosed and poorly ventilated workplace, may produce nausea, vomiting, headache, dizziness, and irregular eye movements.

SKIN CONTACT

No evidence of adverse effects from available information.

EYE CONTACT

Liquid, vapor, and mist may cause discomfort in the eye with persistent conjunctivitis, seen as slight excess redness or conjunctiva. Serious corneal injury is not anticipated.

EFFECTS OF REPEATED OVEREXPOSURE

Inhalation of mist may produce signs of central nervous system involvement, particularly dizziness and nystagmus.

OTHER EFFECTS OF OVEREXPOSURE

Constant use resulting in repeated incidents of skin contact may cause skin sensitization and an associated dermatitis in some individuals.

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE

The available toxicology information and a knowledge of the physical and chemical properties of the material suggest that overexposure is unlikely to aggravate existing medical conditions.

SIGNIFICANT LABORATORY DATA WITH POSSIBLE RELEVANCE TO HUMAN

HEALTH HAZARDS

Ethylene glycol has been shown to produce dose-related teratogenic effects in rats and mice when given by gavage or in drinking water at high concentrations or doses. Also, in a preliminary study to assess the effects of exposure of pregnant rats and mice to aerosols at concentrations 150, 1000 and 2500 mg/m³ for 6 hours a day throughout the period of organogenesis, teratogenic effects were produced at the highest concentration, but only in mice. The conditions of these latter experiments did not allow a conclusion as to whether the developmental toxicity was

mediated by inhalation of aerosol, percutaneous absorption of ethylene glycol from contaminated skin, or swallowing of ethylene glycol as a result of grooming the wetted coat. In a further study, comparing effects from high aerosol concentration by whole-body or nose-only exposure, it was shown that nose-only exposure resulted in maternal toxicity (1000 and 2500 mg/m³) and developmental toxicity in with minimal evidence of teratogenicity (2500 mg/m³). The no-effects concentration (based on maternal toxicity) was 500 mg/m³. In a further study in mice, no teratogenic effects could be produced when ethylene glycol was applied to the skin of pregnant mice over the period of organogenesis. The above observations suggest that ethylene glycol is to be regarded as an animal teratogen; there is currently no available information to suggest that ethylene glycol caused birth defects in humans. Cutaneous application of ethylene glycol is ineffective in producing developmental toxicity; exposure to high aerosol concentration is only minimally effective in producing developmental toxicity; the major route for producing developmental toxicity is perorally.

Two chronic feeding studies, using rats and mice, have not produced any evidence that ethylene glycol causes dose-related increases in tumoree incidence, or a different pattern of tumorees compared with untreated controls. The absence of a carcinogenic potential for ethylene glycol has been supported by numerous in-vitro genotoxicity studies showing that it does not produce mutagenic or clastogenic effects.

This product contains less than 0.5% tolyltriazole which has demonstrated mutagenic activity in a bacterial test system. A correlation has been established between mutagenic activity and carcinogenic activity for many chemicals. Tolyltriazole has not been identified as a carcinogen or probable carcinogen by NTP, IARC or OSHA.

EMERGENCY AND FIRST AID PROCEDURES

SWALLOWING

Give two glassess of water and induce vomiting immediately. Never give anything by mouth to an unconscious person. Get medical help urgently by calling a physician, emergency room or poison control center.

SKIN

Remove contaminated clothing. Immediately wash all affected and exposed areas with soap and copious amounts of water. If irritation or redness develops and persists, seek medical attention.

INHALATION

If symptoms of exposure develop, remove to fresh air. If breathing becomes difficult, administer oxygen. Administer artificial respiration if breathing has stopped, and seek immediate medical attention.

EYES

Exposed eyes should be immediately flushed with copious amounts of clean water, using a steady stream for a minimum of 15 minutes. If irritation, pain, swelling or tearing persist, seek medical attention.

NOTES TO PHYSICIAN

The principal toxic effects of ethylene glycol, when swallowed, are kidney damage and metabolic acidosis. Ethanol is antidotal and its early

administration may block the formation of nephrotoxic metabolites of ethylene glycol in the liver. The objective is to rapidly achieve and maintain a blood ethanol level of approximately 100 mg/dl by giving a loading dose of ethanol followed by a maintenance dose. Intravenous administration of ethanol is the preferred route. Hemodialysis may be required. 4-Methylpyrazole, a potent inhibitor of alcohol dehydrogenase, has been used therapeutically to decrease the metabolic consequences of ethylene glycol poisoning. Additional therapeutic modalities which may decrease the adverse consequences of ethylene glycol metabolism are the administration of both thiamine and pyridoxine.

Pulmonary edema with hypoxemia has been described in a number of patients following poisoning with ethylene glycol. Respiratory support with mechanical ventilation may be required.

There may be cranial nerve involvement in the late stages of toxicity from swallowed ethylene glycol. In particular, effects have been reported involving the seventh, eighth, and ninth cranial nerves, presenting with bilateral facial paralysis, diminished hearing and dysphagia.

VI. REACTIVITY DATA

STABILITY

Stable

HAZARDOUS POLYMERIZATION

Will not occur

CONDITIONS TO AVOID

None

INCOMPATIBILITY (Materials to Avoid)

Normally unreactive; however, avoid strong bases at high temperatures, strong acids, strong oxidizing agents and materials reactive with hydroxyl compounds.

HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS

Burning may produce carbon monoxide and/or carbon dioxide.

VII. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED

Wear suitable protective equipment. Small spills should be flushed with large quantities of water. Larger spills should be collected for disposal.

WASTE DISPOSAL METHOD

Incinerate in a furnace where permitted under appropriate federal, state, or local regulations. At very low concentration in water, ethylene glycol is readily biodegradable in a biological wastewater treatment plant.

VIII. SPECIAL PROTECTION INFORMATION

(for manufacturing and bulk spill cleanup)

RESPIRATORY PROTECTION

For operations where the TLV may be exceeded, a NIOSH/MSHA approved respirator with an organic vapor cartridge and a dust/mist pre-filter or a supplied air respirator is recommended. Equipment selection depends on contaminant type and concentration, select in accordance with 29 CFR 1910.134 and good industrial hygiene practice. For firefighting, use self-contained breathing apparatus.

VENTILATION

General ventilation should be adequate for normal use at ambient temperatures. For operations where the material is heated or misted and the TLV may be exceeded, forced ventilation such as local exhaust may be needed to maintain exposure levels below applicable limits.

PROTECTIVE GLOVES

Chemical resistant, such as neoprene or PVC coated, gloves recommended where needed to prevent prolonged/repeated skin contact.

EYE PROTECTION

Splash-proof goggles recommended.

OTHER PROTECTIVE EQUIPMENT

Protective clothing if needed to avoid prolonged/repeated skin contact. Suitable washing and eye flushing facilities should be available in the work area. Contaminated clothing should be removed and laundered before re-use.

IX. SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING

Do not drink antifreeze or solution.
Avoid breathing vapors or mists.
Do not store in open or unlabeled containers.
Wash exposed skin thoroughly with soap and water after use.
Keep container away from open flames and excessive heat.
Do not cut or weld on or near container, even empty.
Do not reuse empty containers unless properly cleaned.

OTHER PRECAUTIONS

Observe all requirements of plant, company or government regulations.

Keep out of reach of children.

X. DEPARTMENT OF TRANSPORTATION

HAZARDOUS MATERIALS

None

HAZARD CLASSIFICATION

None

IDENTIFICATION NUMBER

None

LABEL(S) REQUIRED

None

NOTE: IF A BULK SHIPMENT IS INVOLVED THE FOLLOWING INFORMATION APPLIES-

PROPER NAME: Environmentally hazardous substance, liquid, N.O.S. (Ethylene glycol)

HAZARD CLASSIFICATION - 9

IDENTIFICATION NUMBER - UN3082

PLACARD(S) REQUIRED- CLASS 9 UN3082

IMDG CODE SHIPPING CLASSIFICATION

DESCRIPTION: NOT REGULATED

XI. ENVIRONMENTAL DATA

EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW INFORMATION

This product contains the following chemicals subject to SARA TITLE III, Section 313 reporting:

Chemical Name	CAS#	Weight %
Ethylene Glycol	107-21-1	85-95

California Proposition 65 - This product contains trace levels of chemicals which the state of California has found to cause cancer and/or birth defects or other reproductive harm.

Revision Summary: Revised Header

Removed P from MSDS Number

Changed Contact Name, Address and Phone Number

This MSDS is directed to professional users and bulk handlers of the product. Consumer products are labeled in accordance with Federal Hazardous Substances Act regulations.

While Prestone Products Corporation believes that the data contained herein are factual and the opinions expressed are those of qualified experts regarding the results of the tests conducted, the data are not to be taken as a warranty or representation for which Prestone Products Corporation assumes legal responsibility. They are offered solely for your consideration, investigation and verification. Any use of these data and information must be determined by the user to be in accordance with applicable federal, state and local laws and regulations.

If more information is needed, please contact:

Technical Services

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